

Research Article

Gender relations in the livestock production in Koinadugu district, Sierra Leone

Abdul Rahman Sesay*

Department of Animal Science, Njala Campus, Njala University, Sierra Leone

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*Corresponding Author: Abdul Rahman Sesay (E-mail: arsesay368@gmail.com)

ABSTRACT

Gender relations are how a culture or society defines men's and women's rights, obligations, and identities. In rural agricultural contexts, gender dynamics play an integral role in determining who gets what with respect to livestock ownership, decision-making, and distribution of the associated profits. The study aims to assess gender relations in the management, ownership, and decision-making of small-holder livestock in the Koinadugu district, Sierra Leone. Data were collected from six different chiefdoms located within the Koinadugu district. A total of 267 farmers who raised animals participated in the study. Data were obtained using a semi-structured questionnaire. A statistical package for the social sciences (SPSS) was used to analyze the collected data. The study result shows that men mainly own cattle, goats, and sheep, while women own poultry. Men contributed more to the following tasks: vaccination, Harding, and selling live animals. At the same time, women participate largely in the following activities, such as cleaning gutters and shades, milking animals, processing, selling milk, and selling eggs. The results also show that men make decisions mainly about assigning tasks to family members, purchasing livestock, cultivating grain, and building animal shades. At the same time, the decision to breed animals and feed animals is greatly influenced by women. However, the decision about hiring labor, the treatment of animals, the purchase of feed and concentrate, the sale of live animals, and the size of the herd are influenced by both men and women. Therefore, it is vital to create and enact laws and policies that promote equal rights and opportunities for women so that rural women can contribute significantly to inclusive economic development and the long-term success of the Sierra Leonean livestock industry.

Key words: Gender relation, Decision-making, Livestock production

INTRODUCTION

Gender relations are how a culture or society defines men's and women's rights, obligations, and identities (Bravo-Baumann, 2000). Gender relationships may also be expressed as hierarchical power relationships between men and women that tend to disadvantage women. These gender hierarchies are often considered natural and alter over time. They may be found in a range of gendered behaviors, such as the division of labor and resources (access to/control over resources), and gendered beliefs, such as notions about appropriate behavior for men and women (Reeves & Baden, 2000). Gender relationships influence the cultivation and consumption of agricultural goods, including crops, livestock, and farmed fish, in rural areas where most people are smallholders (Quisumbing *et al.*, 2014). Gender relations determine how power is represented in gendered ways and across social groups, including gender roles and the ability of women and men to navigate these roles (Farnworth & Colverson, 2015; Verhart *et al.*, 2016).

In rural agricultural contexts, gender dynamics play an integral role in determining who gets what with respect to livestock ownership, decision-making, and distribution of the profits associated with it (Singh *et al.*, 2016; Galiè *et al.*, 2019). According to several studies, livestock husbandry activities are

divided between men and women in most societies, but the degree of participation varies from culture to culture (Bhasin, 2011; Ahmad, 2013). Socioeconomic, agroecological, ethnic, and religious issues affect how women participate in livestock production (Tipilda, 2008). In Ethiopian highlands, men are responsible for feeding the oxen and taking the animals for veterinary treatments when necessary, while women clean cowsheds, milk cows, care for calves and sick animals, cut grass and supervise feeding and grazing, make dung cakes, butter, and cheese and sell these products once or twice a week (Yisehak, 2008). As in most societies, males are responsible for caring for the herd. The calves are the responsibility of the women, and their duties include cleaning the shed and spreading manure on coffee and plantain crops. Chagga women and girls in the Kilimanjaro area of northern Tanzania are responsible for all aspects of livestock care, including milking, shed cleaning, collecting feed, and bringing it to the head of zero-grazed animals. They also provide the animals with food, drink, and bedding. Men are responsible for cutting down banana trees and feeding vehicles (Polomack, 1989). Men and women work together to set up fodder; boys help their parents, and girls help their mothers. Women in Egypt build coops, milk cattle, and transform milk into cheese and butter. Women also do much marketing for processed goods (Beshara, 1987). Men and women work together to collect food

and transport animals to the field. Conelly *et al.* (1987) found that women and girls bore the brunt of managing livestock in their intensive crop-livestock farming system in western Kenya. Women did 70% of the work in livestock production and 40% in daily livestock management.

Historically, Sierra Leone farms have been run as multifaceted enterprises that encompass agricultural and livestock production. There is a wide range of livestock production systems in the country. Some examples are intensive livestock farming, mixed farming, and nomad ranching. About 75% of Sierra Leoneans rely on agriculture for their livelihood; Industry plays a crucial role in the country's economy. Men and women, including children of both sexes, participate in livestock management (Ali *et al.*, 2007; Sesay *et al.*, 2022a). The lack of modern technology and infrastructure makes farmers rely heavily on family labor. Gender and cultural norms in sub-Saharan Africa significantly impact women's roles in agriculture and livestock raising (Kristjanson *et al.*, 2014). Although women are disadvantaged in certain livestock management activities and decision-making due to religious and traditional beliefs, recognizing the potential and including them in development efforts can greatly increase their effectiveness. The level of participation of men and women in management and decision-making is not well documented in Sierra Leone. Therefore, the study aims to evaluate gender relations in the management, ownership, and decision-making of smallholder livestock in the Koinadugu district, Sierra Leone.

METHODOLOGY

Study area

The research was carried out in Sierra Leone. The Bombali district in the west surrounds the Koinadugu district, the Tonkolili district in the southwest, the Kono district in the south, and the Republic of Guinea to the north. Despite having the fewest people per square mile of any district in the nation, it is the geographically largest district in the country. The district experiences wet and dry seasons like the rest of the country. The rainy season runs from May to October, with an average of 208 centimeters and 147 days of precipitation. The dry season is from November to April. Rural areas are home to around 91% of the district's population, and their families typically comprise six members on average. About 84% of the district population derives most of their income from agricultural production (Statistic Sierra Leone, 2017). The district contains the largest number of animals in the country, making it an excellent source of animal protein.

Sampling procedure

Data were collected from six different chiefdoms located within the Koinadugu district. These chiefdoms include Kasunko, Mongo, Sengbe, wara-wara yagala, Dembelia Sinkunia and Folsaba Dembelia. A survey of livestock farmers within the six different chiefdoms. A straightforward random

sampling strategy was used, and the cooperation of the heads and chiefs of numerous villages within the study areas was essential for its success. After that, 267 farmers who raised animals participated in the study. Data were obtained using a semi-structured questionnaire. The questionnaires were administered to 267 livestock farmers between February 6 and March 25, 2022.

Data analysis

The collected data was coded into the Statistical Package (SPSS) for analysis and interpretation. Data interpretations were made using descriptive and inferential statistics. Tables and graphs were used to display the frequency and percentage distribution of the data. A four-point Likert type scale was used: to a great extent = 4, to some extent = 3, to little extent = 2, and to no extent = 1, to determine the factors that affect gender participation in the decision-making process of livestock management. A mean score greater than or equal to 2.5 was considered significant in the study. Multiple regression analysis was used to identify the socioeconomic factors that affect gender relations in livestock production. The multiple linear regression model for factors that affect gender relations in livestock production is constructed as follows.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + u$$

Where,

Y = Participation

X₁ = Gender

X₂ = Age (years)

X₃ = Level of education (no years of school)

X₄ = Marital status

X₅ = Family size

X₆ = Farm income (Le)

X₇ = Access to credit

X₈ = Religion

X₉ = Tribe

b₁ - b₉ = Regression coefficients

a = Constant term

u = Error term

RESULT AND DISCUSSION

Socioeconomic characteristics of the respondent

The socioeconomic characteristics of the respondents are presented in Table 1. Most of the respondents are male (67.8%). This indicates that the livestock industry is male-dominated. Most livestock farmers (50.2%) are between the ages of 31 and 40. The educational status shows that most (57.3%) have no formal education. This finding agrees with Sesay *et al.* (2022b) that 59.5% of farmers in the Tonkolili district of Sierra Leone are illiterate. Most livestock farmers (76.0%) were married, and the majority (67.0%) had a household size of 6-10 people. Most livestock farmers (64.4%) have a low annual income

between Le 5000 and 95000. Most livestock farmers (79.4%) had no access to the credit facility.

Gender relation and livestock ownership

Figure 1 shows the gender and livestock ownership patterns of the respondents. The result shows that cattle (77.5%), goats (67.4%), and sheep (70.8%) are mainly owned by men, while women-owned poultry (88.0%). The results are consistent with those of Ayoade *et al.* (2009), who said that most of the women in livestock production in Nigeria kept poultry as their main livestock enterprise, followed by goat and sheep production.

Table 1: socioeconomic characteristics of respondents (n=267)

Variables	Categories	Frequency	Percentage
Gender	Male	181	67.8
	Female	86	32.2
Age	21-30	19	7.1
	31-40	134	50.2
	41-50	62	23.2
	51-60	27	10.1
	Above 60	25	9.4
Education	Illiterate	153	57.3
	Primary	46	17.2
	Secondary	44	16.5
	Tertiary	24	9.0
Marital status	Single	27	10.1
	Married	203	76.0
	Others	37	13.9
Family size	1-5	11	4.1
	6-10	179	67.0
	11-15	60	22.5
	Above 15	17	6.4
Annual farm income	Up to Le 4500	11	4.1
	Le 5000-9500	172	64.4
	Le 10000-14500	49	18.4
	Above 14500	35	13.1
Access to credit	No access	212	79.4
	Have access	55	20.6

Source: Field Survey, 2022

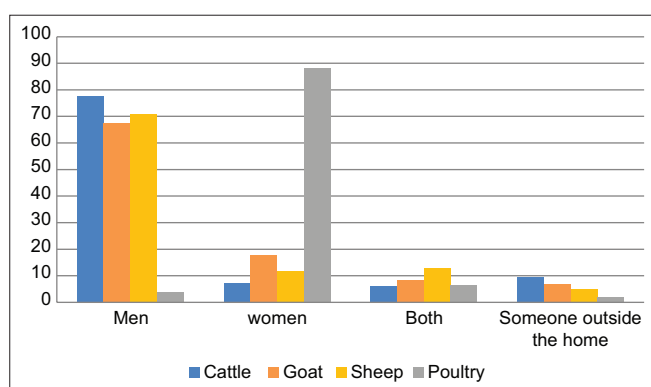


Figure 1: Gender relation and livestock ownership pattern

Gender roles and responsibilities to major livestock activities

Table 2 shows the roles and responsibilities in livestock activities. Men contributed a higher proportion to the following tasks, namely, vaccination (72.3%), Harding (68.9%), and selling live animals (73.0%). At the same time, women participate largely in the following activities, such as cleaning gutters and shades (68.2%), milking animals (80.1%), processing and selling milk (77.5%), and selling eggs (75.3%). Men and women contribute equally to the following tasks: feeding animals (65.5%) and breeding animals (61.4%). Male children also contributed to forage collections (61.4%) and tethering of animals (66.7%). Feed cuts (77.2%) and slaughtering animals (64.4%) are carried out by hired labor. The results are partially similar to Yisehak (2008), that in the Ethiopian highlands, men are responsible for feeding the oxen and taking the animals for veterinary treatments when necessary, while women clean cowsheds, milk cows, care for calves and sick animals, cut grass, and supervise the feeding and grazing of cows (Yisehak, 2008). An examination of cattle ranching in central and eastern Kenya by Njuki *et al.* (2004) indicated that women were more active in feeding animals, while men were more involved in watering and disease management. In many pastoral cultures, women play a central role in all aspects of animal care (Flintan, 2008). Although they are not the owners, women often assume the primary responsibility of maintaining and caring for animals (Yisehak, 2008; Herrero *et al.*, 2013).

Socioeconomic factors affecting gender relations in livestock management

Multiple regression analysis (ordinary least squares) was performed to identify the socioeconomic factors affecting gender relations in livestock production (Table 3). The overall model was considered to fit the data having a significant $F(1, 9) = 92.6, p < 0.01, R^2 = 0.76$. This indicates that 76% of the variation in the factors that affect gender relations in livestock production as sampled was explained by the independent variables included in the model.

The study revealed that age ($p < 0.01$), family size ($p < 0.01$), and religion ($p < 0.01$) are positive and significant factors that affect gender relations in livestock production. While gender ($p < 0.00$) and marital status ($p < 0.02$) are the negative and significant factors that affect gender relations in livestock production. Age was significant, which means that the older the individual, the more likely they are to be well-treated in livestock management activities and decision-making. Older people are highly respected and respected in society. They are given certain rights and allowed to participate in the decision-making process. The family size was also significant, which means that the larger the family size, the more people were given rights and treated well. Most communities' large family sizes have large farmland and many livestock species,

Table 2: Gender roles and responsibilities for major livestock activities (n=267)

Activities	Gender (%)				
	Men	Women	Both	Children	Hired labor
Cutting of fodder	19.5	0.0	0.0	3.4	77.2
Forage collection	29.6	2.2	1.9	61.4	4.9
Feeding animals	4.5	18.7	65.5	9.0	2.2
Cleaning the gutter and sheds	3.4	68.2	7.9	20.6	0.0
Care of sick animals	9.7	55.1	28.5	6.7	0.0
Vaccination	72.3	0.0	0.0	0.0	27.7
Harding	68.9	0.0	0.0	14.6	16.5
Tethering	26.6	0.0	6.7	66.7	0.0
Milking animals	0.0	80.1	0.0	19.9	0.0
Processing and selling milk	0.0	77.5	1.9	20.6	0.0
Egg collection	0.0	58.4	29.2	12.4	0.0
Selling eggs	0.0	75.3	0.0	24.7	0.0
Selling live animals	73.0	15.4	11.6	0.0	0.0
Slaughtering of animals	30.0	0.0	0.0	5.6	64.4
Breeding	10.1	19.1	61.4	9.4	0.0
Offering water to the animals	5.6	12.4	8.2	73.8	0.0

Source: Field Survey, 2022

Table 3: Socioeconomic factors that affect gender relations in livestock management

Variables	Unstandardized Coefficients β	Standard error	T-value	Significant
(Constant)	0.61	0.17	3.70	0.00
Gender (X_1)	-0.22	0.03	-7.09	0.00
Age (X_2)	0.02	0.01	2.41	0.01
Education (X_3)	-0.02	0.01	-1.32	0.18
Marital status (X_4)	-0.07	0.03	-2.31	0.02
family size (X_5)	0.23	0.01	16.48	0.00
Farm Income (X_6)	-0.01	0.02	-0.16	0.87
Access to credit (X_7)	0.01	0.04	0.30	0.77
Religion (X_8)	0.09	0.04	2.64	0.01
Tribe (X_9)	-0.01	0.02	-0.07	0.94
		R square	Adjusted R square	F statistics
		0.76	0.76	92.60

Source: Authors computation, 2022

Table 4: Gender in decision-making about livestock production (n=267)

Decision on:	Gender (%)		
	Men	Women	Both men and women
Task allocation	62.9	25.1	12.0
Purchase of livestock	65.5	25.5	9.0
Hiring of labor	12.0	22.8	65.2
Breeding of animals	27.3	63.3	9.4
Feeding of animals	19.5	70.8	9.7
Treatment of animals	24.0	24.0	52.1
Purchase of feed and concentrates	12.4	13.1	74.5
Cultivation of fodder	75.3	19.5	5.2
Construction of animal sheds	83.1	14.6	2.2
Sales of live animals	10.5	22.1	67.4
Sales of animal produce	9.4	76.4	14.2
Size of the herd	29.2	4.5	66.3

Source: Field Survey, 2022

allowing members of those families to participate actively in the livestock management and decision-making process. Religion is another factor that affects gender relations in livestock production. Religion determines the rights and responsibilities of an individual, male or female, and how an individual is treated in society. The particular religion that people practice in a community determines the role and responsibility of people in that community.

Gender relationships in decision-making about livestock production

Table 4 shows gender in decision-making about livestock production. The results show that decisions on task allocation to family members (62.9%), purchase of livestock (65.5%), fodder cultivation (75.3%), and construction of animal shades (83.1%) are mostly done by men alone. At the same time, the decision to breed animals (63.3%) and feed animals (70.8%) is greatly influenced by women. However, the

Table 5: Factor affecting gender participation in the decision-making process for livestock management (n=267)

Factors	To a great extent (%)	To some extent. (%)	To a very little extent (%)	To no extent (%)	Mean (\bar{x})	Rank order
Age	63.3	22.8	11.6	2.2	3.47	5
Education	68.5	21.7	7.9	1.9	3.57	2
Social conflicts	23.6	62.5	10.5	3.4	3.06	7
Lack of awareness	21.0	65.5	9.4	4.1	3.03	8
Cultural norms	22.1	65.9	7.9	4.1	3.06	7
Control over resources	68.2	24.3	5.6	1.9	3.59	1
Conventional belief system	14.6	74.5	7.1	3.7	3.00	9
Informal matrilinear rules	24.3	65.5	7.9	2.2	3.12	6
Misinterpretation of religious teaching	62.2	27.7	6.4	3.7	3.48	4
Resistance from family members	10.1	27.3	57.3	5.2	2.42	10
Male dominance	74.2	10.5	11.2	4.1	3.55	3
Women work not recognized	11.2	6.0	19.9	62.9	1.66	11

Sources: Field survey, 2022

decision on hiring labor (65.2%), the treatment of animals (52.1%), the purchase of feed and concentrate (74.5%), the sale of live animals (67.4%) and the size of the herd (66.3%) are influenced by both men and women. There is evidence that women worldwide own animals, but this asset is handled quite differently depending on location, culture, and even the woman's family (Heintz *et al.*, 2018; Meinzen-Dick *et al.*, 2019). Women's ownership of animals does not always translate into influence over the livestock product's decision-making process or the livestock product or the marketing of the product (McKune *et al.*, 2015). Even with regard to animals, men and women may have different rights (Arshad *et al.*, 2010; Njuki & Sanginga, 2013). Poultry in Africa is typically owned and cared for by women; nevertheless, they rarely have complete autonomy over the animals' fate (Gueye, 2000). Women in northern Kenya's nomadic pastoralist communities had the right to sell milk, according to research by McPeak and Doss (2006), but men controlled the herd as a whole and had the final say over where their families camped for the night.

Factor affecting the participation of the respondent in the livestock management decision-making process

Table 5 reveals that control over the resource (\bar{x} =3.59), education (\bar{x} =3.57), male dominance (\bar{x} =3.55), misinterpretation of religious teachings ($x = 3.48$), and age (\bar{x} =3.47) are the main factors that affect the participation of respondents in the decision-making process. The results are consistent with those of Arshad *et al.* (2010), revealing that age, male dominance, traditional belief, misinterpretation of religious teachings, and cultural norms affect the participation of rural women in the decision-making process. Younger women are less involved in decision-making, but their involvement increases with age. Education plays an important role in the decision-making process. Educated women are more influential in the family (Arshad *et al.*, 2010).

CONCLUSION

The result of the study revealed that men contributed more to the following tasks: vaccination, herding, and selling live animals. At the same time, women participate largely in the following activities, such as cleaning gutters and shades, milking animals, processing and selling milk, and selling eggs. Men and women contribute equally to the following tasks: feeding and breeding animals. The study also revealed that age, family size, and religion are positive and significant factors that affect gender relations in livestock production. The results show that men make decisions about assigning tasks to family members, buying livestock, growing grains, and building animal shades. At the same time, the decision to breed animals and feed animals is greatly influenced by women. However, the decision about hiring labor, the treatment of animals, the purchase of feed and concentrate, the sale of live animals, and the size of the herd are influenced by both men and women. The study also reveals that control over resources, education, male dominance, misinterpretation of religious teachings, and age are the main factors that affect participation in the decision-making process.

Therefore, it is vital to create and enact laws and policies that promote equal rights and opportunities for women so that rural women can contribute significantly to inclusive economic development and the long-term success of the Sierra Leonean livestock industry. The government, the private sector, religious leaders, and the media must educate men about women's social and civil rights. Additionally, programs designed to develop the skills and self-assurance of rural women are needed if they are to play a larger role in decision-making.

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